

REQUEST FOR INFORMATION AND EXPRESSIONS OF INTEREST

Next Generation Nuclear Plant

SUMMARY

The Department of Energy (DOE) is supporting the research, development, and design work for a Generation IV nuclear power plant that represents a significant advance over existing energy production technologies in terms of sustainability, safety and reliability, economics, proliferation resistance and physical protection. The Department is working with its international partners in the Generation IV International Forum to identify research and development activities that could enable such a technology to be demonstrated in pilot form before 2020. The base technology concept, the Next Generation Nuclear Plant (NGNP), is an advanced, next-generation nuclear reactor coupled to advanced electricity and hydrogen generation technologies.

The Department has developed a draft strategy, which is intended to stimulate private sector advice and information in advance of the Department's determination of mission need and funding availability for this effort. This approach is intended to elicit information to support the Department's future critical decisions in accordance with DOE program and project management directives.

With this notice, the Department is soliciting comments from all interested parties including, in particular, those who have the capability and experience necessary to integrate activities associated with the research, development, design, construction, licensing, and operation of advanced technology nuclear facilities. In particular, the Department seeks private sector comments regarding the strategy outlined in this notice, including comments on the structure and financing of the project and its management.

The strategy, outlined in this notice, is designed to maximize U.S. private sector and international (*e.g.*, agents of countries that are members of the Generation IV International Forum) cost-shared participation in this effort, while also integrating the research work conducted at the Department's lead laboratory for nuclear energy technology development, the Idaho National Laboratory (INL). One management and funding option that the Department would like discussed is the feasibility and effectiveness of entering into a cost-shared, cooperative agreement with a U.S. company (the "Project Integrator") to lead the formation of an international consortium for this project and execute the activities associated with this project. As noted in the Department's May 2004 final Request for Proposals for the management and operation of the INL, DOE has not made a final decision to construct a pilot NGNP facility. Should such a decision be made, final site selection will be subject to compliance with NEPA, other applicable laws and regulations, and the Department's project approval critical decision process. In all events, the Department intends that the INL would play a central role throughout the NGNP effort.

Comments on this strategy should be received by DOE by July 2, 2004.

CONCEPTUAL PROJECT STRATEGY

Overview

The Department's objective is to conduct research, development, and demonstration of a next-generation nuclear power reactor in order to establish advanced technology for the future production of safe, efficient, and environmentally-acceptable power and to demonstrate the economic and technical feasibility of such facilities to the U.S. electric power industry. The Department contemplates the use of a financial assistance vehicle to enter into a cost-shared cooperative agreement with a U.S.-owned private sector organization (the "Project Integrator"). The cooperative agreement would be structured in a manner that allows the Department to evaluate, through the review of required deliverables, the programmatic and technical merit in proceeding to each phase of work. It is expected that the cooperative agreement, while relatively simple at the onset of the project, would grow in complexity as the Project Integrator develops an international consortium and proceeds through the various phases of this project. The Project Integrator would be expected to work with the Idaho National Laboratory to develop and manage research and development plans. The Department expects that most of its early share of the costs will be reflected in research and development led by INL.

Tasks to be performed by the Project Integrator under the cooperative agreement would include:

1. Identify the best-in-class technologies that, when properly integrated, have the potential to meet the Department's system-level objectives. These objectives represent the technology goals for the first commercial plant. The Department recognizes that a pilot facility created as a result of this cooperative agreement may not meet these objectives, but should solve the following technical problems/challenges to allow the commercial facility to meet these goals:
 - Development of a system that can generate electric power at a cost of less than 1.5 cents/kilowatt-hour;
 - Development of a system that can produce hydrogen at a cost of less than \$1.50/gallon-gasoline equivalent;
 - Development of a system that will cost less than \$1000/kilowatt to construct with a goal of \$500/kilowatt.
2. Conduct a broad-spectrum evaluation of relevant technologies identified in the task above and define an integrated technical baseline for the project.

3. Conduct a competition among technology vendors and select two organizations to develop design concept studies of their recommended technologies.
4. Conduct a detailed technical and economic evaluation of the two competing reactor concepts.
5. Recommend a single integrated technical, cost and schedule baseline that is the preferred of the two selected concepts, a concept based on an optimization of the two concepts, or a third, unrelated concept that the Project Integrator believes to be superior.
6. Establish the technical, cost and schedule baseline for the integrated reactor and hydrogen production facility.
7. Assemble an independent panel of experts (possibly through the National Academy of Sciences) to review the recommended technical, cost and schedule baseline.
8. Establish a business plan with required cost sharing from industrial and international partners. Intellectual property rights for all partners will be subject to DOE's statutes and regulations and international agreements as applicable. Intellectual property rights of parties to applicable International Agreements are governed by the terms of the International Agreement.
9. Develop a pre-conceptual design of the preferred baseline.
10. Develop a research plan to identify and address key technology issues requiring demonstration.
11. Develop a conceptual design.
12. Develop a detailed preliminary design.
13. Develop a detailed final design.
14. Obtain all Nuclear Regulatory Commission licensing approvals.
15. Construct the facility.
16. Operate the facility for the purpose of demonstrating the technical and economic viability of the NGNP technology.

DOE expects any agreement to cover all activities related to this project including research and development, design, licensing, construction and operation phases. The agreement also would address issues such as technology rights and private ownership of the NGNP capital assets. The Department expects to engage in negotiations with the

Project Integrator to determine the level of cost-share required during each phase of the agreement to assure the success of the project while protecting the interests of the taxpayers.

The Department anticipates that several competitively selected subcontracting partners will team with the Project Integrator to perform specialty work as the project progresses. Under standard DOE Intellectual Property policies and provisions, Intellectual Property Rights (IPR) may be fragmented among prime contractors and subcontractors. In this regard, the Department seeks comments on how the Project Integrator would expect to manage IPR. DOE is willing to support the agreement with patent waivers and exceptional circumstance determinations, as necessary and determined appropriate by the Department, to assist the Project Integrator in consolidating and/or pooling the IPR. Furthermore, the Department may wish to obtain appropriate rights in contractor/subcontractor IPR to assure continuation of the project in the event of a contractor/subcontractor withdrawal.

Evaluation Criteria

The Department seeks comments on criteria that the Department may use in evaluating proposals for the competitive award of a cooperative agreement(s). These criteria could include (but may not be limited to) an applicant's demonstrated capability to:

1. Successfully manage and complete projects (especially nuclear projects) of similar size, scope and complexity within the past 5 years and provide qualified project personnel with demonstrated capability, experience and certifications;
2. Manage and integrate the research, development, design, construction, licensing and operation of the NGNP;
3. Manage projects within cost and schedule;
4. Objectively evaluate the attributes of competing technology concepts without conflict of interest arising from commitments to or financial interests in the corporate sponsors of those concepts;
5. Organize an international team capable of achieving the Department's objectives;
6. Negotiate all business agreements, including technology licenses, cooperative sub-agreements, and any other contractual instruments necessary to allow the construction and operation of the resultant design; and
7. Lead the commercial deployment of the resultant design in the United States.

CONTACT INFORMATION

The Department seeks public comment from all interested parties regarding its plans to enter into an agreement with a U.S. company to carry out the NGNP project. Comments are sought that address all aspects of the proposed strategy including any input regarding cost share, intellectual property rights, capital asset ownership, and evaluation criteria. A commenter should identify themselves, their company or organization, their interest in the project (eg. environmentalist, potential consortium member, construction subcontractor, etc.), and contact point.

In addition, U.S. companies interested in performing the tasks of the Project Integrator are invited to submit Expressions of Interest and comments on any aspect of the strategy detailed herein. Expressions of Interest shall be limited to 10 pages and include (a) the U.S. company's name, telephone number, mailing address, and email address, (b) a designated point of contact within the firm, (c) a statement of interest in participating in the NGNP program, and (d) evidence of the experience, technical and financial ability, and commitment to pursue the NGNP project.

Confidential information contained within a submission should be identified and marked accordingly. The Department will protect confidential information to the extent permitted by law.

Interested parties may submit their comments by e-mail or by regular mail to Trevor Cook, Office of Nuclear Energy, Science and Technology, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington DC, 20585, E-mail address: NGNPEOI@NUCLEAR.ENERGY.GOV.

DOE may conduct one-on-one meetings with companies that respond to this request as a potential Project Integrator. The goal of one-on-one meetings would be to improve the companies' understanding of DOE's strategy and DOE's understanding of the comments provided. If DOE decides to hold one-on-one meetings, interested companies will be contacted.

In formulating the strategy for the NGNP program, the Department will consider all comments received by July 2, 2004.

Disclaimer: The information obtained through this request for information will be applied in the implementation of the Department's formal acquisition process. This document, which is intended to elicit information and comments on the Department's strategy to develop the NGNP concept, does not represent a commitment by the Government to enter into a financial assistance instrument for the work described herein. Neither is this document intended as a formal solicitation of competitive financial assistance applications. No costs associated with responding to this Request or participating in any subsequent meetings will be borne by the Government.